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XIV.—Descriptions of new species of fossorial hymenoptera in the collection of the British Museum

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The mouths of the cells are generally placed so as to come between two other cells, and they are so pressed down as to be discovered with difficulty; and it frequently happens that no mouth can be discovered over the whole upper surface, but one or two may be found on the edge of the mass.

The arrangement of the cells, if arrangement it can be called, reminds me more of *Cellepora informata*, a Miocene species described by Lonsdale in the 'first volume of the 'Quarterly Journal of the Geological Society,' p. 506. The form of the cells, and their heaping together and being foraminated, gives a certain resemblance to them; but in the fossil rather regular layers of cells can be traced, similar to those in old specimens of *C. pumicosa*, while in the recent species we have in view they are so minute that I cannot satisfy myself on this point.

Large masses of *Sertularia* were cast ashore last autumn and winter on the beach at Exmouth. I collected a good many of them, and on some I discovered this species; they are principally on the lower branches of the Sertularian. I shall send specimens to the British Museum.

EXPLANATION OF PLATE III. B. figs. 1-6.

Fig. 1. Groups of cells, natural size.

Fig. 2. Enlarged.

Fig. 3. Removed from the Sertularian.

Figs. 4, 5. Front and lateral views of cells.

Fig. 6. The beginning of a group with four cells, mouthless, or opening into a common elongated cell.

XIV.—*Descriptions of new Species of Fossorial Hymenoptera in the Collection of the British Museum.* By FREDERICK SMITH, Assistant in the Zoological Department, British Museum.

[Continued from p. 55.]

Family Crabronidæ.

Genus TRYPOXYLON, Latr.

Trypoxylon vagum.

Female. Length $5\frac{1}{2}$ lines. Black, adorned with golden pubescence; abdomen pale testaceous at the base. Head opaque; the face and clypeus with silvery pubescence, that above the insertion of the antennæ and in the sinus of the eyes has a golden lustre; the cheeks silvery; the mandibles and the apex of the scape ferruginous. Thorax: the anterior

margin of the prothorax transverse and elevated, the posterior margin fringed with golden pubescence; the mesothorax smooth and shining, its lateral and posterior margins with golden pubescence; a band of golden pubescence crosses the postscutellum from the insertion of the posterior wings; the sides of the metathorax, which is smooth and shining, with pale golden pubescence; the tibiæ and tarsi ferruginous, the posterior pair more or less fuscous; the tips of the femora and the underside of the posterior pair ferruginous; wings subhyaline, with a fuscous cloud in the marginal cell. Abdomen: the first and second segments above, the base of the third, and the apical margins of the following segments narrowly pale testaceous; beneath, entirely testaceous, with a few irregular fuscous stains, and covered thinly with a fine changeable golden pubescence.

Hab. St. Paulo.

Trypoxylon superbum.

Female. Length 6 lines. Head and thorax black, and adorned with bright golden pubescence; abdomen and legs pale rufo-testaceous. Head: the face and clypeus covered with bright golden pubescence; the cheeks with a changeable pale golden pile, which, in certain lights, has a silvery brilliancy; the palpi and mandibles testaceous yellow, the latter rufo-piceous at their apex; the scape, and four or five of the following joints of the antennæ, ferruginous. Thorax: the prothorax and tegulæ pale ferruginous, the posterior margin of the former, the margins of the mesothorax, the postscutellum, and the metathorax adorned with bright golden pubescence; at the base of the metathorax is a subtriangular space covered with very short pubescence, or golden pile; the sides of the thorax and also beneath clothed with changeable fine golden pile, which, on the pectus, has a silvery lustre; wings flavo-hyaline and iridescent, the nervures ferruginous. Abdomen: the apical margins of the segments usually more or less black, sometimes rufo-piceous, and in some examples only faintly coloured with darker ferruginous.

Hab. Ega.

Trypoxylon rugifrons.

Female. Length $6\frac{1}{2}$ lines. Head and thorax black, and adorned with golden pile; the abdomen and legs pale ferruginous. Head: an ovate space on the face, below the anterior stemma, rugose; the head otherwise covered with pale golden pile, that on the cheeks and clypeus having a silvery brightness in certain lights; the scape and two basal joints of the fla-

gellum of the antennæ, as well as the mandibles, ferruginous. Thorax smooth and shining, and more or less covered with pale golden pubescence; the mesothorax, the scutellum, and metathorax usually destitute of pubescence; a deep longitudinal sulcation at the base of the metathorax, from which a groove runs down to its apex; wings flavo-hyaline, the nervures ferruginous. Abdomen smooth and shining, with the petiole more or less obscure at the base.

Hab. Ega.

Trypoxylon lævifrons.

Female. Length $6\frac{1}{2}$ lines. Head and thorax black, and adorned with golden pile. Coloured the same as *rugifrons*, with these differences: the two apical joints of the antennæ ferruginous, and the petiole of the abdomen not discoloured. The specific differences are, that the space below the anterior stemma is covered with delicate shallow punctures, and it has a central longitudinal channel which terminates in a slightly raised tubercle above the insertion of the antennæ; the metathorax has no sulcation at its base, but has a central, broad, slightly impressed channel, which runs from its apex upwards, stopping short one third of its length before the base.

Hab. Ega.

Trypoxylon fabricator.

Female. Length $5\frac{3}{4}$ lines. Black, smooth and shining, with the basal margins of the second and third segments of the abdomen rufo-testaceous. Head: the clypeus, lower part of the cheeks, and the sinus of the eyes clothed with golden pubescence; the mandibles, base and apex of the scape, and the first joint of the flagellum at its apex, and also beneath, rufo-testaceous; the defined space in front of the anterior ocellus with a few irregular shallow punctures; from its anterior margin an elevated carina runs down to the insertion of the antennæ. Thorax: the margins of the pro- and mesothorax with golden pubescence; the sides of the metathorax have a paler pubescence; at its base is a deep central sulcation, which is indistinctly and transversely striated; the oblique truncation has a second broad groove, which runs to the apex; wings hyaline and iridescent, the nervures black; the articulations of the legs are pale; the anterior tibiæ and tarsi palest; the basal joint of the intermediate tarsi white at the base.

The male closely resembles the other sex, but has the defined space on the front rugose; the legs are darker, and the transverse striation on the metathorax is stronger.

Hab. Ega; Catagallo (Brazil).

Genus CRABRO, Fabr.

Crabro nasicornis.

Female. Length 3-3½ lines. Black, with yellow markings; the clypeus covered with bright silvery pubescence, and having an acute tooth in the middle of its anterior margin. Head large, subquadrate, and a little wider than the thorax; the cheeks covered with silvery pile; the scape of the antennæ bright yellow; the mandibles yellowish white. Thorax: the collar, tubercles, an ovate spot on each side of the scutellum at its base, and another which is united to it at its side, yellow; the wings hyaline and iridescent; the nervures black; the tegulæ honey-yellow; the coxæ and femora beneath yellowish white; the tibiæ pale ferruginous; the tarsi whitish; the femora above, and the intermediate and posterior tibiæ outside, rufo-piceous, sometimes blackish. Abdomen: the apical margins of the segments narrowly rufo-piceous; the basal margins have on each side a yellow fascia, which widens into a large macula at the extreme lateral margins; the apical segment canaliculated and bright ferruginous; beneath, the second segment is usually almost entirely yellow, and the third has two pale yellow spots; the markings beneath are variable in the three examples examined, as is also the colouring of the legs in its intensity.

Hab. Ega; St. Paulo.

Crabro pugnans.

Female. Length 2½ lines. Black; head and thorax marked and spotted with yellow. The scape of the antennæ, the palpi, and mandibles yellow; the flagellum fulvous; the clypeus covered with bright silvery pubescence; a longitudinal groove along the outer margins of the eyes, which is filled with silvery pubescence. Thorax: the collar, tubercles, an ovate spot at the lateral angles of the base of the scutellum, two curved lines on the metathorax laterally, immediately behind the insertion of the wings, yellow; the metathorax coarsely rugose; the mesothorax shining, and finely and closely punctured; wings subhyaline, iridescent, and with the nervures black; the tibiæ and tarsi yellow. Abdomen smooth and shining; the fifth segment with a fine cinereous pile; the apical segment ferruginous.

Hab. Para.

Crabro megacephala.

Female. Length 2¼ lines. Black; head very large, rather wider than the thorax, and oblong-quadrate. Head: the scape

of the antennæ and a line at the base of the mandibles yellow, the latter otherwise ferruginous; the flagellum fulvous. Thorax: the collar, tegulæ, two ovate spots on the scutellum laterally, and a line united to them, running up to its base, as well as the postscutellum, yellow; the legs yellow, with the posterior femora rufo-testaceous; wings hyaline and iridescent, with the nervures fusco-ferruginous. Abdomen: an ovate yellow spot on the second, third, and fourth segments laterally, close to the outer margins.

Hab. Para.

Crabro carinatus.

Female. Length 4 lines. Black; head and thorax marked with yellow; abdomen fasciated with the same. Head large, subquadrate above, and rather wider than the thorax; ocelli in a curve; the clypeus with silvery pubescence, and the cheeks with bright, changeable, silvery pile; the scape of the antennæ and a line at the base of the mandibles yellow. Thorax: the collar, tubercles, a line at the base of the scutellum, the postscutellum, and all the tibiæ in front yellow; the legs sometimes rufo-piceous; the mesothorax with two elevated abbreviated carinæ on the disk anteriorly; the disk rugose; the metathorax with a deep, central, longitudinal channel; the enclosed space at its base obliquely rugose; the truncation with shallow, transverse, coarse striæ; wings flavo-hyaline, the nervures pale ferruginous. Abdomen: the first segment strongly punctured, the second less strongly so, the following impunctate; the segments margined posteriorly, and with broad yellow fasciæ, which extend over the margination; the first segment without a fascia; the apical segment yellow and canaliculated.

Hab. St. Paulo; Ega.

Crabro sculpturatus.

Female. Length $5\frac{1}{2}$ lines. Black; the scape of the antennæ, scutellum, postscutellum, and legs beneath yellow. Head as wide as the thorax; ocelli in a triangle; coarsely rugose with confluent punctures; clypeus sharply carinate and densely covered with silvery pubescence. The anterior margin of the prothorax elevated into a sharp carina, which terminates laterally in an acute tooth; the anterior portion of the mesothorax, before the insertion of the wings, coarsely sculptured with divergent striæ or grooves; the posterior portion with oblong longitudinal punctures disposed in rows; the metathorax with a coarse reticulation, composed of large shallow punctures; at the sides it has an oblique coarse stria-

tion; the rest of the thorax beneath has large shallow punctures; the tarsi pale yellow, with the apical joints black; wings subhyaline, nervures fuscous. Abdomen: the basal segment strongly punctured, with its apical margin opaque and finely shagreened; the second, third, and fourth segments are transversely and evenly striated at their base; the middle portion is strongly punctured, and the apical is shagreened; the following segments are smooth and shining; the fifth segment has a few punctures at its apical margin, and the terminal segment is canaliculated and punctured, and has a tuft of golden setæ on each side; beneath, smooth and shining, the second segment having, on each side, a large ovate space, which is semiopaque, and covered with fine, thin, hoary pile.

Hab. Ega.

This species belongs to St. Fargeau's subgenus *Ceratocalus*, and is a most remarkably sculptured insect.

Crabro dentatus.

Female. Length $3\frac{3}{4}$ lines. Black, with yellow markings; a stout tooth in the middle of the anterior margin of the clypeus, and a smaller one on each side at the lateral angles; the cheeks have also a sharp tooth at their lower posterior angles. Head large, subquadrate, and wider than the thorax; the ocelli in a curve on the vertex; the scape and mandibles yellow, the latter rufo-piceous at their apex; the flagellum fulvous. Thorax: the collar, tubercles, two spots on the scutellum and another on each side of it, which unite with the former ones, and the postscutellum yellow; the anterior legs reddish yellow; all the coxæ, the intermediate and posterior legs yellow; all the femora above, and the posterior pair with a line beneath, black; the semicircular space beneath the postscutellum with coarse, divergent, longitudinal grooves; wings hyaline and iridescent, with the nervures fuscous. Abdomen subpetiolate; the basal margins of the segments more or less rufo-testaceous laterally; the second segment beneath, and the apical margins of the other segments, rufo-testaceous.

Hab. Para.

Crabro verticalis.

Female. Length 3 lines. Black; two large, yellow, ovate spots on the scutellum, and two smaller spots on the postscutellum; abdomen petiolate. Head: the posterior margin of the vertex raised, forming a transverse carina which terminates laterally in a small tubercle; the ocelli in an equilateral

triangle; the scape in front and the mandibles yellow, the latter ferruginous at their apex; the flagellum fulvous beneath; the palpi pale testaceous; the lower part of the face and the clypeus covered with bright silvery pubescence. Thorax: the collar, tubercles, anterior and intermediate tibiæ and tarsi, and all the femora at their apex yellow; the posterior tibiæ spinose externally, and their calcaria pale ferruginous; the wings hyaline and iridescent, with their nervures fuscous; the tegulæ testaceous; two yellow spots on the scutellum, and also *two* on the postscutellum. Abdomen shining, and thinly covered with a fine, pale, sericeous pile.

Hab. St. Paulo (Brazil).

Family Philanthidæ.

Genus CERCERIS, Latr.

Cerceris reversus.

Male. Length $3\frac{1}{2}$ lines. Black, with yellow spots and bands above; beneath yellow, with black markings. Head: the face, clypeus, mandibles at their base, and the scape of the antennæ in front yellow; the flagellum fulvous beneath. Thorax: an interrupted line on the collar, the tegulæ, scutellum, postscutellum, and the metathorax yellow; the latter with an abbreviated black line that runs halfway up from its base; and at its base a minute triangular black space, with a yellow dot in the middle; wings subhyaline, iridescent, and with a fuscous stain along the anterior margin of the fore wings; the legs are yellow beneath, except the posterior femora, which are only so at their base; an irregular-shaped yellow spot in the middle of the pectus; the anterior and intermediate tarsi yellow, the posterior pair fuscous. Abdomen: the first segment, a line on the posterior margin of the second laterally, and an entire fascia on that of the four following segments, with the seventh entirely, yellow; beneath yellow, with narrower black fasciæ.

Hab. Para.

Cerceris pullatus.

Female. Length $4\frac{1}{2}$ lines. Black; the wings fuscous; the legs varied with yellow. Head: the sides of the face, below the insertion of the antennæ, yellow; the clypeus black, its anterior margin slightly emarginate, and produced at the angles into a short acute tooth; the lower part of the face, on each side of the clypeus, with a bright silvery pubescence; the scape, and two basal joints of the antennæ, and the underside

of the other joints, ferruginous; mandibles ferruginous, with a yellow spot at their base. Thorax: an interrupted line on the postscutellum and the tegulæ reddish yellow; wings fusco-hyaline, with a dark fuscous stain along the anterior margin of the superior pair; the anterior legs ferruginous; of the other pairs the tibiæ and tips of the femora beneath are yellow, the posterior tibiæ being more or less black; the basal joint of the tarsi white, the other joints more or less rufo-fuscous. Abdomen: a minute spot on the basal segment and the apical margins of the second, fourth, and fifth segments with narrow yellow fasciæ. The insect covered with strong confluent punctures.

Hab. St. Paulo.

The markings of this species are evidently variable: of two examples only, one has a minute yellow spot behind the eyes, and also a very narrow interrupted line on the collar.

Cerceris modestus.

Female. Length $4\frac{1}{3}$ lines. Black, and adorned with bright yellow markings. Head: a yellow line at the inner margins of the eyes, widening towards the base of the clypeus, which is also yellow and elevated; the base of the mandibles and a spot behind the eyes yellow; the antennæ fulvous beneath. Thorax: the collar, a spot beneath the wings, the tegulæ, scutellum, two spots on the postscutellum, and another on each side of the metathorax above yellow; wings hyaline, iridescent, and with a dark fuscous stain in the marginal cell, which extends to the apex of the wings; the nervures dark fuscous; the tibiæ with a yellow line outside; the legs dark rufo-piceous. Abdomen: the second segment yellow, except its extreme base; the apical margins of the other segments yellow, the apical one entirely so. The head and thorax strongly punctured, the abdomen sparingly so.

Hab. Ega.

Cerceris nigriceps.

Female. Length 4 lines. Head black, and also the three apical segments of the abdomen; otherwise of a reddish yellow. Head: the face yellow, and with a pale golden glittering pubescence; a short conical tubercle at the base of the clypeus; mandibles yellow, with their tips black; the scape and four basal joints of the antennæ ferruginous, the following joints ferruginous beneath. Thorax: the postscutellum yellow; the tarsi and front of the tibiæ and femora, as well as the coxæ beneath, yellowish; wings subhyaline, iridescent, and with a fuscous stain along the anterior margin of the front wings;

the nervures fusco-ferruginous. Abdomen: the apical margins of the segments yellow. The insect covered with confluent punctures.

Hab. Para.

The colour of this species will probably be found to vary in being more or less red, and also in the amount of pure yellow with which it is variegated. It is unique in the National Collection.

Cerceris ruficeps.

Female. Length $4\frac{1}{2}$ lines. Head red, with the face and clypeus yellow; thorax and abdomen black, and spotted and banded with yellow. Head: the scape yellow in front, ferruginous behind; the four basal joints of the flagellum ferruginous, the following are only so beneath; the mandibles ferruginous, with their apex black; a large black spot on the vertex, enclosing the ocelli. Thorax: the collar, two spots spots beneath the wings, the tegulæ, a minute spot on each of the scutellum, and the postscutellum yellow, and more or less tinged with ferruginous; wings fusco-hyaline and iridescent; the costal nervures and the stigma pale ferruginous, the rest of the nervures dark fuscous; the legs ferruginous and more or less variegated with yellow; the posterior tibiæ and femora blackish within. Abdomen: a broad yellow margin on the basal segment, edged with ferruginous; the second and fifth segments with a narrow white fascia near their apical margins. The insect covered with confluent punctures.

Hab. St. Paulo.

Genus TRACHYPUS, Klug.

Trachypus disjunctus.

Male. Length $5\frac{3}{4}$ lines. Black, variegated with yellow and white. Head shining on the vertex, which is covered with large confluent punctures; the face more closely and finely punctured, and covered with silvery pubescence; the clypeus and cheeks with long fulvous pubescence; the scape in front, and a very narrow line at the inner margins of the eyes, yellow; six or eight of the basal joints of the flagellum yellowish beneath; tips of the mandibles rufo-piceous. Thorax shining; the mesothorax with three deep longitudinal furrows, which have a short impressed line between them and the tegulæ; the scutellum, postscutellum, and an enclosed space at the base of the metathorax smooth and shining; the latter has a small pit in the middle; beyond, the metathorax is punctured; wings

subhyaline, beautifully iridescent, the nervures rufo-fuscon; an interrupted line on the collar, two spots on each tegula, and a small oblong spot on each side of the insertion of the abdomen yellow; the tibiæ and knees of the anterior and intermediate legs, and also the tarsi of the former, yellow; the intermediate and posterior tarsi white, with the tips of the joints black. Abdomen smooth and shining; the extreme base of the second segment ferruginous; it has also a little before its apical margin an interrupted yellow fascia, which widens towards the lateral margins; the apical margins of the fourth, fifth, and sixth segments with narrow yellow fasciæ, the first slightly interrupted.

Hab. St. Paulo.

This insect may possibly be the male of *Trachypus basalis*, since both are from St. Paulo.

Trachypus basalis.

Female. Length $5\frac{3}{4}$ lines. Black, and variegated with yellow and ferruginous. Head rather strongly punctured, the punctures shallow and confluent; the face, as high as the antennæ, the clypeus, and a bilobed spot above it, also a minute spot between the lobes, the scape of the antennæ in front, the cheeks, and a line behind the eyes yellow; tips of the mandibles black; the flagellum of the antennæ fulvous beneath. Thorax: the disk with fine shallow punctures; an oblong central broad depression and a narrower one on each side; the base of the metathorax very smooth and shining; a slightly interrupted line on the collar, the tegulæ, tubercles, and two abbreviated lines at the apex of the metathorax yellow; the anterior and intermediate tibiæ, and femora in front, yellow, ferruginous above, and the tibiæ with a black line behind; the tarsi ferruginous beneath and more or less fuscous above; the posterior femora fusco-ferruginous; the apical joints of the tarsi pale ferruginous; wings flavo-hyaline, with the nervures ferruginous. Abdomen very smooth and shining, the second segment obscurely ferruginous; an interrupted fascia at the apex of the petiole; a fascia on the apical margin of the second segment, attenuated in the middle, and the margins of the fourth and fifth with a narrow fascia, yellow; the sides of the apical segment yellow; beneath, the second segment yellowish white, with a furcate black spot at the base; the apical margin of the fifth segment yellow.

Hab. St. Paulo.